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EFFICACY OF CONSUMING DATES (PHOENIX DACTYLIFERA) IN OVERCOMING GESTATIONAL FATIGUE AND ANEMIA IN SECOND TRIMESTER PREGNANT WOMEN: LITERATURE REVIEW

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Abstract
Pregnancy fatigue and anemia are common conditions in pregnant women in the second trimester and can increase the risk of maternal and fetal complications. Dates (Phoenix dactylifera) contain iron, folic acid, vitamin B complex, and natural sugars that have the potential to increase hemoglobin levels and energy metabolism. This study aims to analyze the efficacy of date consumption in overcoming gestational fatigue and anemia in pregnant women in the second trimester. The study used a literature review method by examining scientific articles from 2020–2025 obtained from the PubMed and Google Scholar databases. The study population consisted of articles related to date consumption, gestational fatigue, anemia, and pregnant women, with a sample of 12 articles consisting of 6 national journals and 6 international journals. The research instrument used a literature review sheet and data analysis was carried out descriptively through synthesis of research results. The results showed that consuming 6–7 dates (70–100 grams) per day for at least 14 days can increase hemoglobin levels by 0.965–2.3 g/dL and improve labor parameters related to reduced fatigue. The combination of dates and iron supplements has been shown to be more effective than iron supplements alone. In conclusion, dates are an effective and safe non-pharmacological intervention to help treat anemia and fatigue in pregnant women.
Keywords:*Anemia, Gestational Fatigue, Hemoglobin, Pregnancy, Dates*

INTRODUCTION

Pregnancy is a process in which an embryo or fetus of one or more offspring develops in a woman's uterus. Pregnant women experience various physical and physiological changes accompanied by hormonal, metabolic, and hematological changes that can affect the mother's physical condition during pregnancy (Chandra & Paray, 2024). During pregnancy, a woman's body undergoes significant changes that affect almost every organ to adapt and support the pregnancy and the development of the growing fetus. The adaptation process is continuous and dynamic (Sri et al., 2025).

One common complaint is gestational fatigue, or tiredness during pregnancy. Fatigue is a feeling of extreme and persistent tiredness, accompanied by a decreased energy capacity for physical and mental work (Effati-Daryani et al., 2021). This condition often occurs in the second trimester due to increased nutritional needs and changes in the mother's blood volume. According to Muzakir et al., 2021, fatigue in pregnant women is very dangerous for both herself and the fetus in the womb. Health risks that can be experienced by pregnant women if they experience fatigue include spotting or blood spots, premature contractions, and stress. Severe fatigue experienced by pregnant women can increase the risk of premature labor, prolonged labor, instrumental delivery or cesarean section, and postpartum depression. (Obianeli et al., 2024)

Fatigue during pregnancy can be caused by various factors, both physiological and pathological. One of the most important pathological factors is anemia. According to Obeagu & Agreen (2023), anemia in pregnancy is defined as a hemoglobin concentration of less than 11 g/dL (hematocrit less than 33%) in the first and third trimesters, or a hemoglobin concentration of less than 10.5 g/dL (hematocrit less than 32%) in the second trimester. Anemia during pregnancy can cause serious complications, affecting both the

mother and the baby. For the mother, anemia can increase the risk of premature birth or postpartum hemorrhage, while for the baby, anemia can cause low birth weight or stunted growth. (Qiao et al., 2024)

According to the World Health Organization (WHO), by 2023, approximately 35.5% of pregnant women aged 15-49 years will suffer from anemia worldwide. (WHO, 2025). The 2023 Indonesian Health Survey (SKI) found that 27.7% of pregnant women in Indonesia suffer from anemia. Based on age groups, the highest prevalence of anemia is in the 35-44 age group (39.6%), followed by the 25-34 age group (31.4%). (Ministry of Health of the Republic of Indonesia, 2024)

Pregnant women with low hemoglobin levels tend to experience more severe fatigue than those with normal hemoglobin levels. Therefore, preventing and managing anemia is an important strategy for reducing fatigue during pregnancy. Currently, the primary intervention used is iron supplementation in the form of iron tablets. However, adherence to iron tablet consumption is often challenging due to side effects such as nausea, vomiting, and constipation.

An alternative non-pharmacological intervention that is beginning to be widely studied is the use of natural foods rich in iron and energy, one of which is dates (Phoenix dactylifera). Dates contain a good percentage of sucrose, fructose, and glucose, varying between 65% and 80% depending on the type and ripeness of the date. Dates are also rich in various B-complex vitamins, as explained by the chemical structure of B6 and amino acids (Al-Karmadi & Okoh, 2024).

Dates contain iron, which plays a vital role in hemoglobin formation. Furthermore, folic acid (vitamin B9) aids in red blood cell formation, while B-complex vitamins play a role in blood cell metabolism and function. (Alfheeaid, 2023) Consuming dates can help increase the blood's oxygen-carrying capacity by increasing hemoglobin levels. Furthermore, B-complex vitamins play a role in energy metabolism, while minerals such as potassium and magnesium help maintain muscle function and reduce the risk of cramps and fatigue. (Malinowski & Murji, 2021)

The purpose of this literature review is to examine in more depth the effectiveness of consuming Dates (Phoenix Dactylifera) in overcoming Gestational Fatigue and Anemia in Pregnant Women in the Second Trimester, which is in accordance with previous studies by reviewing several studies.

METHOD

The method used in this writing is a literature review that contains a lot of information regarding the treatment of fatigue or anemia in pregnant women. This literature review is a series of studies with library data collection methods, or research whose research objects are from various library information. This review uses several sources including systematic search studies of computerized databases (Pubmed and Google Scholar) taken within the last 5 years from 2020-2025. The criteria for finding the search key for the literature review are "Dates (Phoenix Dactylifera)", "Gestational Fatigue", "Anemia", and "Pregnant Women". The articles obtained in conducting the search are... journals, but after reviewing the articles and adjusting them according to the title, there are 12 journals with 6 national journals and 6 international journals.

RESULTS AND DISCUSSION

Based on the results of the literature search that has been conducted, 12 articles were obtained that discuss the efficacy of consuming dates (Phoenix dactylifera) in overcoming gestational fatigue and anemia in pregnant women in the second trimester.

The following are the studies used in this research:

No	Title	Researchers & years	Method	Sample	Data analysis	Results
1	Is oral consumption of dates (Phoenix dactylifera L. fruit) in the peripartum	(Salajegheh et al., 2024)	Systematic review and meta-analysis with random-effect approach	48 studies from 55 publications (2,460 initial records)	Analysis using Risk Ratio (RR) and Weighted Mean Difference	Consuming 6-7 dates (70-80 grams) per day for 2-4 weeks before the expected delivery date (EDD) has been shown to improve cervical

	period effective and safe integrative care to facilitate childbirth and improve perinatal outcomes: a comprehensive revised systematic review and dose-response meta-analysis		using Stata software		(WMD) with 95% CI. Heterogeneity test using I^2 and Cochran's Q test.	dilation upon admission, improve Bishop scores, increase spontaneous labor, decrease the need for induction, and shorten labor duration (latent, active, and first and third stages). Breast milk production increases and postpartum hemorrhage decreases. Maternal hemoglobin levels increase in the third trimester. The quality of evidence is low-moderate, and the RoB is high in most studies.
2	The Effects of Date Consumption on Labor and Vaginal Birth	(El-Ardat et al., 2025)	Quasi-experimental design with 2 groups (intervention and control)	120 pregnant women in GAK Sarajevo (60 intervention group consuming 6 dates/day for the last 4 weeks, 60 control group without dates)	Descriptive analysis with percentage, mean, and SD. Comparison using appropriate statistics.	The intervention group showed a shorter latent phase of labor (cervix dilation reached 10 cm earlier), an 8.5-hour shorter labor time (vs. 15 hours in the control group), a 60% spontaneous labor rate without induction, and only 40% requiring oxytocin. Dates enhance the effects of oxytocin because they contain fatty acids that stimulate prostaglandins. They are rich in folate, vitamin K, iron, potassium, and magnesium.
3	The Impact of the Fruit and Seed of Date on Childbirth Stages and Pregnancy Complications	(Rahnemaei et al., 2024)	Narrative review using PRISMA guidelines with systematic literature search	16 articles from 894 studies screened (from Web of Science, PubMed, Scopus, ProQuest, Google Scholar databases 2000-2022)	Data extraction includes reference, region, participants, sample size, intervention group, comparison group, type of product, and outcomes	Consuming 7 dates (80 grams) per day for 2-4 weeks before the expected delivery date results in: better cervical dilation at admission, an improved Bishop score, a reduced need for induction/augmentation, more effective uterine contractions, a shorter duration of pregnancy and stages of labor. Dates can improve blood pressure parameters in women at risk of preeclampsia and accelerate episiotomy healing. They contain prostaglandins, serotonin, and calcium,

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						which help uterine muscle contractions.
4	Effect of Eating Date Fruit on the Progress of Labor for Parturient Women	(Zaher et al., 2021)	Quasi-experimental design with 2 groups	92 mothers giving birth at Mit-Ghamer General Hospital (46 standard care control group, 46 intervention group eating 7 dates on admission with dilation ≤4 cm)	Chi-square test for categorical variables, Independent t-test for continuous variables. P-value ≤0.05 is considered significant.	The intervention group showed faster labor progress: higher frequency of uterine contractions (significant at 2, 4, 6 hours after admission, p<0.05), stronger contraction intensity (significant at 2, 4, 6 hours, p<0.05), faster cervical dilation (significant at 2, 4, 6 hours, p<0.05), better fetal head descent (significant at 2, 4, 6 hours, p<0.05). Dates contain natural oxytocin-like substances that increase uterine contractions.
5	Effect of Date Fruit Consumption in Later Pregnancy on Length of Gestation, Labor and Delivery of Nulliparous Women	(Hiba et al., 2022)	Randomized Controlled Trial (RCT)	140 nulliparous women (70 experimental group consuming 7 dates/day from week 35 until the onset of spontaneous labor, 70 control group without dates)	Independent samples t-test for labor progress, Chi-square test for labor outcome, One-way ANOVA for comparison of cervical dilation and labor progress based on mode of delivery. P-value ≤0.05 is significant.	The experimental group showed: higher spontaneous onset of labor (84.2% vs 61.4%, p=0.02), better cervical dilation at admission (2.47±0.90 cm vs 1.60±0.70 cm, p=0.001), shorter latent phase duration (4.87±1.80 hours vs 8.04±3.30 hours, p=0.001), shorter duration of the second and third stages of labor (p=0.02), higher spontaneous vaginal delivery (78.5% vs 61.4%), lower need for oxytocin augmentation (32.8% vs 51.4%, p=0.02), lower cesarean section rate (15.7% vs 30.0%).
6	A Narrative Review On The Effects Of Date Fruit (Phoenix Dactylifera) Consumption During Late Pregnancy On Cervical Ripening, Labor Induction And	(Patrycja Ucieklak et al., 2025)	Narrative review	6 different RCTs and cohort studies examined the impact of daily date consumption in late pregnancy on birth	Data extraction includes cervical dilation at hospital admission, frequency of spontaneous labor, need for oxytocin	Consuming 6-7 dates per day for 2-4 weeks before the expected date of delivery results in: increased cervical dilation at hospital admission, higher rates of spontaneous onset of labor, shorter duration of all stages of labor (especially the latent

	Labor Duration			outcomes.	augmentation, and duration of all phases of labor.	and active phases of the first stage), and reduced need for oxytocin augmentation. Greater cervical dilation at admission is associated with better birth outcomes and reduced rates of postpartum interventions. Spontaneous onset of labor is associated with higher maternal satisfaction, shorter hospital stays, and a reduced risk of instrumental/operative delivery. No significant adverse effects have been reported, indicating a safe intervention.
7	Improving maternal hemoglobin: comparing the effectiveness of dates and mung bean cookies in anemia pregnant women	(Yunia et al., 2024)	Quasi-experimental with two-group pre-test post-test design	34 pregnant women with anemia at the Bojongasih Community Health Center, Tasikmalaya (17 groups of dates, 17 groups of green beans)	Paired t-test for within-group analysis and linear regression to assess the effect of intervention on Hb with significance $p<0.05$	The date group showed a greater increase in Hb (from 9.906 to 10.871 g/dL; an increase of 0.965 g/dL) compared to the mung bean cake group (from 9.888 to 10.476 g/dL; an increase of 0.588 g/dL). The difference was statistically significant ($p=0.001$). Dates are more effective because they contain iron and vitamin C, which increase iron bioavailability. Mung beans contain phytates, which inhibit iron absorption.
8	Effectiveness of consuming dates in increasing hemoglobin levels in pregnant women with anemia	(Nurdin et al., 2025)	Quasi-experimental with one-group pre-test post-test design using Point of Care Testing (POCT)	22 pregnant women with anemia at Tanjung Aru Community Health Center, Paser, Indonesia	Paired t-test with SPSS version 26, significance $p<0.05$	Before the intervention: 68.2% had mild anemia, 31.8% had moderate anemia, and 0% had normal hemoglobin. After 14 days of consuming 7 Tamr dates (±100g) per day: 45.4% achieved normal hemoglobin, mild anemia decreased to 36.4%, and moderate anemia decreased to 18.2%. The mean hemoglobin increased significantly from 13.81

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						g/dL to 14.62 g/dL (p=0.013). Dates are effective in increasing hemoglobin due to their iron, folate, and vitamin C content, which support erythropoiesis.
9	The Effect of Date Palm (Phoenix dactylifera) Consumption on Increasing Hemoglobin Levels in Pregnant Women	(Astuti ED, 2025)	Quasi-experimental with pretest-posttest without control group	30 pregnant women in their second trimester with mild to moderate anemia at Carikan Community Health Center, Pati Regency	Wilcoxon test with significance p<0.05	The average Hb increased from 10.2 g/dL to 11.1 g/dL after consuming 7 dates (100 grams) per day for 14 days. This increase was statistically significant (p<0.05). Dates contain 13.7 mg of iron per 100 grams, vitamin C, vitamin B6, calcium, zinc, magnesium, and antioxidants that support erythropoiesis and enhance iron absorption. The natural sugars and fiber in dates make them easily tolerated by pregnant women.
10	The Effect of Giving Iron Supplements and Sukari Dates (Phoenix dactylifera) on Hemoglobin Levels in Anemic Pregnant Women at the Karang Rejo Community Health Center	(Rahayu et al., 2024)	Quasy Experiment with Pretest-Posttest Control Group Design	34 pregnant women with anemia at Karang Rejo Health Center (17 control group TTD only, 17 intervention group TTD + Sukari dates)	Independent T-Test with significance p<0.05	Intervention group (TTD + Sukari dates): Hb increased from 10.1 g/dL to 12.4 g/dL (an increase of 2.3 g/dL). Control group (TTD only): Hb increased from 10.1 g/dL to 11.2 g/dL (an increase of 1.1 g/dL). The p-value = 0.000 (p < 0.05) indicates a significant difference. Sukari dates contain 1.2 mg/100 grams of iron and 6.1 mg/100 grams of ascorbic acid which helps iron absorption. The sweet taste of dates reduces nausea due to the side effects of TTD, thereby increasing compliance.
11	The Role of Dates in Increasing Hemoglobin Levels in Women: A Scoping Review	(Kalsum et al., 2025)	Scoping review based on Joanna Briggs Institute guidelines	12 studies from 10 databases (January 2014 - October 2024)	Descriptive analysis of 12 studies that met the inclusion criteria	The majority of studies showed significant increases in Hb in the date consumption group, with increases ranging from 1.18 to 1.67 g/dL. Ajwa, Sukari,

				involving adolescent girls and pregnant women with iron deficiency anemia		and black date varieties were shown to be effective. Several studies noted increases in ferritin levels, reflecting improved iron stores. A 14-day intervention was more effective than a 7-day one. The optimal dose ranges from 100 to 125 grams/day. These findings support the use of date consumption as a dietary supplement to improve Hb and iron status in adolescent girls and pregnant women.
12	Effect of Ferrous Fumarate Supplementation and Date (Phoenix dactylifera) Consumption on Hemoglobin Levels of Women in the Third-Trimester of Pregnancy	(Murtiyarini et al., 2021)	Quasi-experimental with pretest-posttest design	60 pregnant women in their third trimester at Puteri Ayu Health Center, Jambi (30 ferrous fumarate only group, 30 ferrous fumarate + dates group)	Paired t-test and independent t-test with 95% confidence interval	Ferrous fumarate alone group: Hb increased from 10.29 g/dL to 10.98 g/dL (0.69 g/dL increase, $p<0.001$). Ferrous fumarate + 3 Sukari dates/day combination group: Hb increased from 10.25 g/dL to 11.83 g/dL (1.58 g/dL increase, $p<0.001$). The difference between groups was significant ($p=0.001$). The combination of ferrous fumarate with dates was more effective (11% increase) because dates are rich in iron, protein, carbohydrates, and fats that support hemoglobin synthesis.

Based on a review of 12 peer-reviewed journals, consistent evidence was found regarding the efficacy of date consumption in addressing pregnancy fatigue and anemia in second-trimester pregnant women through two main mechanisms: improved labor parameters indicating reduced fatigue and increased hemoglobin levels. Meta-analysis results(Salajegheh et al., 2024)A review of 48 studies showed that consuming 6-7 dates (70-80 grams) per day for 2-4 weeks before the due date resulted in better cervical dilation, increased spontaneous labor, decreased need for induction, and shorter labor duration. These findings were supported by(El-Ardat et al., 2025)which showed a delivery time of 8.5 hours versus 15 hours in controls ($p<0.05$), as well as(Hiba et al., 2022)who reported a higher spontaneous onset of labor (84.2% vs. 61.4%, $p=0.02$) and a shorter latent phase duration (4.87±1.80 hours vs. 8.04±3.30 hours, $p=0.001$). These improved labor parameters indicate reduced pregnancy fatigue, supported by the natural sugar content of dates (65-80%) which provides quick energy, as well as B-complex vitamins, potassium, and magnesium which play a role in energy metabolism and muscle function.(Al-Karmadi & Okoh, 2024)&(Malinowski & Murji, 2021)

Increasing hemoglobin levels is an important indicator in addressing anemia, a major contributing factor to pregnancy fatigue. Reviews show that date consumption consistently increases Hb in pregnant

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women with anemia.(Yunia et al., 2024)showed a greater increase in Hb in the date group (0.965 g/dL) compared to green beans (0.588 g/dL, p=0.001), while(Nurdin et al., 2025)reported that 45.4% achieved normal Hb after 14 days of consuming 7 dates (±100g) with a significant increase from 13.81 to 14.62 g/dL (p=0.013). The combination of iron tablets (TTD) with dates proved to be more effective, with(Rahayu et al., 2024)showed an increase of 2.3 g/dL in the TTD+dates group versus 1.1 g/dL in the TTD alone group (p=0.000). Scoping review(Kalsum et al., 2025)confirms that Hb increases range from 1.18 to 1.67 g/dL with an optimal dose of 100 to 125 grams/day for at least 14 days. The mechanism of action of dates involves their iron content (13.7 mg/100g), vitamin C, which increases iron bioavailability, folic acid for red blood cell formation, and vitamin B complex for red blood cell metabolism.(Alfheeaid, 2023)

The advantage of dates as a non-pharmacological intervention lies in their good safety profile without significant negative effects.(Patrycja Ucieklak et al., 2025)Unlike iron tablets, which cause nausea, vomiting, and constipation, the natural sweetness of dates actually reduces nausea and increases adherence.(Rahayu et al., 2024)The optimal recommended dose is 6-7 tablets (70-100 grams) per day for a minimum of 14 days to increase hemoglobin, or 2-4 weeks before the due date to improve labor parameters. Consumption during the second trimester is particularly relevant because this period experiences increased nutritional needs and blood volume, which increases the risk of anemia and fatigue. Considering that the prevalence of anemia in pregnant women in Indonesia reaches 27.7%.(Ministry of Health of the Republic of Indonesia, 2024)and the serious impact of pregnancy fatigue on maternal-perinatal outcomes such as premature birth, prolonged labor, and postpartum depression(Obianeli et al., 2024), dates can be recommended as a safe, effective, and easily accessible intervention in obstetric practice to address anemia and fatigue in pregnant women in the second trimester.

CONCLUSION

After researching and reviewing literature in 12 relevant scientific publication journals on the efficacy of consuming dates (Phoenix dactylifera) in overcoming gestational fatigue and anemia in pregnant women in the second trimester, it was found that there was an effect of consuming dates on increasing hemoglobin levels and improving labor parameters which indicated reduced pregnancy fatigue. Based on the results of this study, researchers can conclude that consuming 6-7 dates (70-100 grams) per day for at least 14 days effectively increases hemoglobin levels with an increase ranging from 0.965-2.3 g/dL in pregnant women with anemia. In addition, consuming dates for 2-4 weeks before the estimated date of delivery has been shown to improve labor parameters such as shortening the duration of labor, increasing spontaneous labor, and reducing the need for induction. The mechanism of action of dates in overcoming anemia and fatigue involves iron content (13.7 mg/100g), vitamin C, folic acid, vitamin B complex for energy metabolism, and natural sugars (65-80%) which provide fast energy. Dates have a good safety profile with no significant side effects and can even reduce nausea caused by iron tablets and improve adherence to iron supplementation. The combination of iron tablets and dates has been shown to be more effective than iron tablets alone in increasing hemoglobin levels in pregnant women with anemia.

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